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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,434	01/11/2002	Peter A. Warren	FM-169J	9313

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EXAMINER

A, PHI DIEU TRAN

ART UNIT PAPER NUMBER

3637

DATE MAILED: 01/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/044,434	Applicant(s) WARREN, PETER A.	
	Examiner Phi D A	Art Unit 3637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-71 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-71 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/8/04, 11/15/04</u> . | 6) <input type="checkbox"/> Other: _____ |

1. The indicated allowability of claims 41-42 is withdrawn in view of the newly discovered reference(s) to Richards et al and Quigley et al. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 22, 27-43, 47, 50-52, 57-59, 64-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richards et al (4683610) in view of Quigley et al (6004639).

Richards et al (figures 6-7) shows a foldable member comprising at least a first tube (4), at least one predetermined hinge area along the length of the first tube, a plurality of opposing elongated slots (23, figure 7) in the tube through the tube material forming separated longitudinal strips of tube material between the slots which fold when subjected to localized bucking forces, a plurality of opposing slots (figures 6-7), at least four slots (23), one set of two slots opposing another set of two slots (figure 7), each slot of each set of elongated slots separated longitudinally along the length of the tube from each adjacent slot by a bridge element of tube material (figure 6, the slots 23 separated by a bridge element), the opposing sets of slots being diametrically opposed from each other on the tube (figure 7), each slot in each set of slots is diametrically opposed from a slot in the opposing set of slots, two sets of slots and two slots in each set of slots, a stress relieving element (the edge of the slot the interior surface) attached to

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each bridge element on the inside of the tube, a plurality of hinge areas spaced from each other along the length of the tube, each hinge area including opposing sets of elongated slots, an electrical conductor(2) disposed in the tube, at least one transducer device(16, 18) located proximate the hinge area for controlling the folding of the longitudinal strips of tube material, slot reinforcement members (the reinforcing members being the bridges), four slots in each set of slots and each slot of a pair of the four slots opposing another slot (figure 6-7), each slots having a reduced diameter portion, a collapsible structure comprising a plurality of joined members (figure 1).

Richards et al do not show the tube being made of layers of material.

Quigley et al shows a tube being made of layers of material.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Richards et al's structure to show the tube being made of layers of material because it would strengthen the tube against compression as taught by Quigley et al.

Per claims 27, 37-39, 57, 64, 70-71, Richards et al as modified shows the layers of material are laminated to each other except at the predetermined hinge area, the tube being made of a plastic material, the tube being made of a composite material, the composite material including a triaxial braid of fibers in a resin matrix (col 7 line 52-53), the plurality of longitudinal strips being multi-ply.

3. Claims 23-26, 53-56, 60-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richards et al (4683610) in view of Quigley et al (6004639).

Richards et al as modified shows all the claimed limitations except for the first tube including a sheet of plastic material wrapped around itself several times forming the layers of tube material.

Quigley et al further discloses that a tube can be formed by wrapping fibers and a polymer matrix around a mandrel and apply successive composite layers (col 7 lines 44-54).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Richards et al's structure to show the first tube including a sheet of plastic material wrapped around itself several times forming the layers of tube material because wrapping a sheet of plastic material around itself several times to form a layered tube is well known in the art as taught by Quigley et al.

Per claims 24-26, 54-56, 60-64, Richards et al as modified shows an adhesive securing the layers of plastic material to each other at selected locations along the length of the tube and the adhesive being a tape (inherently so the layers of plastic material each if an adhesive tape), the sheet of plastic material comes from a roll of plastic stock material (when pultruded with the fibers impregnated with resin and having a round memory (when cured).

4. Claims 44-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richards et al (4683610) in view of Quigley et al (6004639).

Richards et al as modified shows all the claimed limitations except for the slots being triangle shaped, or diamond shaped.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Richards et al's modified structure to show the slots being triangle shaped,

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or diamond shaped because triangular, diamond, rectangular, or oval shaped slots are well shapes for slots and it would strengthen the tubular structure as taught by Quigley et al.

5. Claims 48-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richards et al (4683610) in view of Quigley et al (6004639).

Richards et al as modified shows all the claimed limitations except for a second tube disposed inside the first tube, the second tube including opposing sets of elongated slots at the hinge area thereof.

Quigley et al (figure 11) further shows a second tube disposed inside the first tube to strengthen the tubular structure.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Richards et al's modified structure to show a second tube disposed inside the first tube because it would strengthen the tubular structure as taught by Quigley et al.

Per claim 49, Richards et al as modified shows the second including opposing sets of elongated slots at the hinge area thereof.

Response to Arguments

6. Applicant's arguments with respect to claims 22-71 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references show different tubular designs.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phi D A whose telephone number is 703-306-9136. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lanna Mai can be reached on 703-308-2486. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Phi Dieu Tran A', with a large circular flourish at the end.

Phi Dieu Tran A

1/6/05